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EXAMINER
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ROSARIO, DENNIS

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/903,028

Applicant(s)

JAYANT ET AL.

Examiner

Dennis Rosario

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-26 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 11 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date 6/16/2006.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. Due to the amendment, the objection to the specification is withdrawn.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 12-14 and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Apostolopoulos et al. (US Patent 5,850,294 A).

Regarding claim 21, Apostolopoulos et al. discloses a method for enhancing a digitized image, comprising the steps of:

- a) receiving an encoded digitized image an encoded digitized image (via the input of fig. 1,num. 18);
- b) expanding the encoded digitized image to generate a decoded digitized image (upon the output of fig. 1,num. 18);
- c) generating a processed image (upon the output of fig. 7,num. 87) by filtering (or smoothing as done in fig. 7,num. 87) the decoded digitized image; and
- d) detecting an edge (via fig. 7,num. 85) in the processed image to enhance (via fig. 5,num. 88) the edge in the processed image.

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Regarding claim 22, Apostolopoulos et al. discloses the method of Claim 21, wherein the edge is a portion of the decoded digitized image separating (via fig. 7,num. 86 that is able to separate or detect between edges) a first image portion of substantially uniform image intensity from a second image portion of substantially uniform image intensity (this portion is an inherent feature of edges).

Regarding claim 23, Apostolopoulos et al. discloses the method of Claim 21, wherein the edge is a line (this portion is an inherent feature of edges) in the decoded digitized image.

Claims 12-14 are rejected the same as claims 21-23. Thus, argument similar to that presented above for claims 21-23 of a method is equally applicable to claims 12-14 of a system.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-11 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Apostolopoulos et al. (US Patent 5,850,294 A) in view of Miyabata et al. (US Patent 5,418,574 A) and further in view of Avinash (US Patent 6,246,783 B1).

Regarding claim 1, Apostolopoulos et al. teaches a method for processing an image, comprising the steps of:

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- a) comparing a first image intensity associated with a subject image portion with a second image intensity associated with an adjacent image portion;
- b) determining an image intensity difference between the first image intensity and the second image intensity
- c) classifying (Fig. 7, num. 85 is an edge detector where detecting is performing the same operation of classifying, because the edge detector is able to distinguish an edge from a non-edge which is the same operation of classifying an edge from non-edges.) the subject image portion (Fig. 7, label: EDGE MAP represents the subject image portion.) as a candidate edge portion (Fig. 7, label: EDGE MAP is the candidate edge portion because it is a representation of TRUE EDGES and FALSE EDGES; however, an indication of which potential edges of the EDGE MAP is a true edge or a false edge is not known until the edge map is inputted in a subsequent step, fig. 7, num. 86) in response to (A method of fig. 7, num. 85.):
  - c1) a determination that the first image intensity is less than the second image intensity and
  - c2) a determination that the image intensity difference is greater than a predetermined threshold image intensity difference;
- d) determining (Fig. 7, num. 86) whether the candidate edge portion (Fig. 7, label: EDGE MAP) is a true edge portion (Fig. 7, label: TRUE EDGES); and
- e) enhancing the true edge portion (via fig. 5, num. 88) by associating the subject image portion (Fig. 7, label: EDGE MAP represents the subject image portion of Apostolopoulos et al.) with a third image intensity, wherein the third image intensity is less than the first image intensity, thereby sharpening the true edge.

Apostolopoulos et al. does not teach the limitations of paragraphs a), b), c1), c2) and the third image intensity and sharpening the true edge of e).

Regarding paragraphs a) and b) and c1) and c2), Apostolopoulos et al. does teach an edge detection in fig. 7, num. 85 and in col. 7, line 36 and is deficient in the edge detection method or an apparatus and a) and b) and c1) and c2) are all determined previously in order to perform paragraph c). Therefore, Apostolopoulos et al. suggests using any edge detector or "an edge detector" in col. 7, line 36 that would inherently include a method or an apparatus with the limitations of paragraphs a) and b) and c1) and c2) and to remedy the deficiencies of Apostolopoulos et al.

Miyabata et al. (US Patent 5,418,574 A) does teach a method, col. 7, lines 26-38, and apparatus, fig. 1, numerals 2 and 3, of edge detection as suggested by Apostolopoulos et al. and teaches paragraphs a) and b) and c1) and c2):

a') comparing ("detecting" in col. 7, line 28) a first image intensity (A first "luminance val-ue" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30.) associated with a subject image portion with a second image intensity (A second "luminance val-ue" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30.) associated with an adjacent image portion;

b') determining an image intensity difference between the first image intensity and the second image intensity ("detecting...the difference in luminance values of adja-cent pixels..." in col. 7, line 33.)

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c1') a determination that the first image intensity (A first "luminance val-ue" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30.) is less than (via "positive or negative" in col. 7, line 33 signs of "adja-cent pixels" in col. 7, lines 32,33 or "consecutive pixels" in col. 7, line 34.) the second image intensity (A second "luminance val-ue" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30. Thus a consecutive line of positive pixels would indicate that an edge has a darker intensity via a "difference" in col. 7, line 32 operation or the claimed first image intensity (foreground) is less (darker) than the second image intensity (background, which is lighter in intensity as compared to the first intensity). ) and

c2') a determination that the image intensity difference is greater than a predetermined threshold image intensity difference (see col. 7, lines 34,35: "total difference");

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al.'s edge detector and EDGE MAP with Miyabata et al.'s teaching of edge detection, because Miyabata et al. supplies what is deficient in the Apostolopoulos et al. reference and enables one of ordinary skill in the art to recreate Apostolopoulos et al.'s invention.

The combination of Apostolopoulos et al. and Miyabata et al. still does not teach the third intensity and sharpening of paragraph e), but Apostolopoulos et al. does teach that "non-edge pixels are smoothed...by any number of...smoothing techniques." in col. 7, lines 26,27. Thus, Apostolopoulos et al. suggests to one of ordinary skill in the art that fig. 5,num. 88 that performs smoothing can be modified.

Avinash teaches a smoothing technique (fig. 2,num. 206) that can be used with Apostolopoulos et al. and the remaining limitation of paragraph e) of:

e) enhancing an edge portion (via fig. 1,num. 212) by associating the subject image portion (a border that is dark on one side and white on the other) with a third image intensity ("darker" in col. 9, lines 42), wherein the third image intensity is less than the first image intensity (since the first image intensity is "dark" in col. 9, line 42), thereby sharpening (or "boost" in col. 9, line 41) the edge (as done in fig. 2,num. 212).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al.'s teaching of smoothing, fig. 5,num. 88, and detection of true edges, fig. 5,num. 84 of the combination with Avinash's teaching of smoothing, fig. 2,num. 206 and sharpening, fig. 2,num. 212, because Avinash's teaching of smoothing and sharpening "improve the quality of images" in col. 2, lines 43,44.

Regarding claim 2, the combination of Apostolopoulos et al. and Miyabata et al. and Avinash teaches the method of claim 1, wherein the step of determining whether the candidate edge portion is a true edge portion, comprises:

a) the step of determining ("examining" in col. 7, line 42 of Apostolopoulos et al.) whether the candidate edge portion (Fig. 7, label: EDGE MAP of Apostolopoulos et al. contains candidate edges.) is adjacent ("connect[ed]" in col. 7, line 42) to at least one second candidate edge portion (Fig. 7, label: EDGE MAP of Apostolopoulos et al. contains other candidate edges that are connected to other candidate edges. Note that candidate edges meet the criteria of Miyabata et al., ie. paragraphs a) and b and c1) and c2).).



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Claims 3 and 4 is rejected the same as claim 2. Thus, argument similar to that presented above for claim 2 is equally applicable to claims 3 and 4.

Regarding claim 5, see fig. 5, label: RECONSTRUCTED IMAGE of Apostolopoulos et al. of the combination of Apostolopoulos et al.

Claims 6 and 7 are rejected the same as claim 5. Thus, argument similar to that presented above for claim 5 is equally applicable to claims 6 and 7.

Regarding claim 8, see "video" in col. 1, line 14 of Apostolopoulos et al. of the combination of Apostolopoulos et al.

Regarding claim 9, see "signal intensity" in col. 3, line 24 of Apostolopoulos et al. of the combination of Apostolopoulos et al. is interpreted the same as luminance or brightness or gray or grey or grayscale.

Regarding claim 10, Miyabata et al. of the combination of Apostolopoulos et al. teaches "luminance...and color" in the abstract, line 2.

Regarding claim 11, Apostolopoulos et al. of the combination of Apostolopoulos et al. teaches the method of claim 1, wherein the image is an image-type selected from the group consisting of:

- a) gaming graphics or "graphics" in col. 3, line 35.

Regarding claim 18, Apostolopoulos et al. teaches a method for detecting and enhancing an edge in a decoded digitized image, comprising the steps of:

- a) determining a first image intensity associated with a first pixel in the decoded digitized image;
- b) determining a second image intensity associated with a second pixel in the decoded digitized image;

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c) determining a third image intensity associated with a third pixel in the decoded digitized image;

d) classifying the first pixel as a first candidate edge pixel (Fig. 7, num. 85 is an edge detector where detecting is performing the same operation of classifying, because the edge detector is able to distinguish an edge from a non-edge which is the same operation of classifying an edge from non-edges.) in response to (A method of fig. 7, num. 85.):

d1) a determination that the first image intensity is less than the second image intensity and is less than the third image intensity;

e) determining whether the first pixel is adjacent to a second candidate edge pixel;

f) determining whether the second pixel is adjacent to a third candidate edge pixel;

g) classifying the first pixel as a true edge pixel in response to a determination that the first pixel is adjacent to the second candidate edge pixel and the second candidate edge pixel is adjacent to the third candidate edge pixel (regarding paragraphs e) and f) and g) see claim 2, above.);

h) associating a fourth image intensity with the first pixel, the fourth image intensity being lower than the first image intensity.

Apostolopoulos et al. does not teach paragraphs a) and b) and c) and d1) and h).

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Regarding paragraphs a) and b) and c) and d1).

Apostolopoulos et al. does teach an edge detection in fig. 7, num. 85 and in col. 7, line 36 and is deficient in the edge detection method or an apparatus and a) and b) and c) and d1) are all determined previously in order to perform paragraph d). Therefore, Apostolopoulos et al. suggests using any edge detector or "an edge detector" in col. 7, line 36 that would inherently include a method or an apparatus with the limitations of paragraphs a) and b) and c1) and c2) and to remedy the deficiency of Apostolopoulos et al.

Miyabata et al. (US Patent 5,418,574 A) does teach a method, col. 7, lines 26-38, and apparatus, fig. 1, numerals 2 and 3, of edge detection as suggested by Apostolopoulos et al. and teaches paragraphs a) and b) and c) and d1):

a') determining a first image intensity associated with a first pixel in the decoded digitized image;

b') determining a second image intensity associated with a second pixel in the decoded digitized image;

c') determining a third image intensity associated with a third pixel in the decoded digitized image (Regarding paragraphs a) and b) and c) see claim 1, a'), above.);

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d1') a determination that the first image intensity (A first "luminance value" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30.) is less than (via "positive or negative" in col. 7, line 33 signs of "adjacent pixels" in col. 7, lines 32,33 or "consecutive pixels" in col. 7, line 34.) the second image intensity (A second "luminance value" in col. 7, lines 29,30 of "adjacent pixels" in col. 7, line 30.) and is less than the third image intensity (Thus, a consecutive line of positive pixels, which would include the claimed third image intensity, would indicate that an edge has a darker intensity via a "difference" in col. 7, line 32 operation or the claimed first image intensity (foreground) is less (darker) than the second image intensity and the third image intensity ( which both may be the background, which is lighter in intensity as compared to the first intensity).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al.'s edge detector and EDGE MAP with Miyabata et al.'s teaching of edge detection, because Miyabata et al. supplies what is deficient in the Apostolopoulos et al. reference and enables one of ordinary skill in the art to recreate Apostolopoulos et al.'s invention.

The combination of Apostolopoulos et al. and Miyabata et al. still does not teach the third intensity and sharpening of paragraph e), but Apostolopoulos et al. does teach that "non-edge pixels are smoothed...by any number of...smoothing techniques." in col. 7, lines 26,27. Thus, Apostolopoulos et al. suggests to one of ordinary skill in the art that fig. 5,num. 88 that performs smoothing can be modified.

Avinash teaches a smoothing technique (fig. 2,num. 206) that can be used with Apostolopoulos et al. and the remaining limitation of paragraph e) of:

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e) enhancing an edge portion (via fig. 1,num. 212) by associating a fourth image intensity ("darker" in col. 9, lines 42) with an edge pixel (or "edge strengths at a given pixel" in col. 7, lines 1,2), the fourth image intensity being lower than the first image intensity (since the first image intensity is "dark" in col. 9, line 42 and not darker), thereby sharpening (or "boost" in col. 9, line 41) the edge (as done in fig. 2,num. 212).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al.'s teaching of smoothing, fig. 5,num. 88, and detection of true edges, fig. 5,num. 84 of the combination with Avinash's teaching of smoothing, fig. 2,num. 206 and sharpening, fig. 2,num. 212, because Avinash's teaching of smoothing and sharpening "improve the quality of images" in col. 2, lines 43,44.

Claim 19 is rejected the same as claim 18, paragraph h'). Thus, argument similar to that presented above for claim 18, paragraph h') is equally applicable to claim 19.

Regarding claim 20, Avinash of the combination teaches the method of claim 18, further comprising the steps of:

- a) determining a background color ("white" in col. 9, line 42) associated with the first pixel (that corresponds to "dark structures" in col. 9, line 42);
- b) determining a quality level (col. 9, line 46 corresponds to a "Range" of sharpening) of the digitized image; and

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c) selecting the fourth image intensity (since the range can be selected then indirectly the fourth image intensity is selected) based on the background color and the quality level.

6. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Apostolopoulos et al. (US Patent 5,850,294 A) in view of Miyabata et al. (US Patent 5,418,574 A).

Regarding claim 24, Apostolopoulos et al. does teach an edge detection in fig. 7, num. 85 and in col. 7, line 36 and is deficient in the edge detection method or an apparatus. Therefore, Apostolopoulos et al. suggests using any edge detector or "an edge detector" in col. 7, line 36 that would inherently include a method or an apparatus with the limitations of claim 24 to remedy the deficiencies of Apostolopoulos et al.

Miyabata et al. teaches an edge detection method as mentioned in col. 7, lines 26-56 and the remaining limitations of claim 24:

a) comparing (via a "difference" in col. 7, line 29) a subject portion ("three or more consecutive pixels" in col. 7, line 46) of a digitized image with a first adjacent portion (or "adjacent pixels" in col. 7, line 30) of the digitized image and with a second portion (of the "adjacent pixels" in col. 7, line 30) of the digitized image and

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b) determining that the subject portion ("three or more consecutive pixels" in col. 7, line 46) is associated with a lower image intensity level ("positive or negative" in col. 7, line 30 value) than a first image intensity (that is not part of the three or more consecutive pixels) associated with the first adjacent portion ("of adjacent pixels" in col. 7, line 30 of the three or more consecutive pixels that are not part of the three consecutive pixels) of the digitized image and a second image intensity (of another adjacent pixel that is not part of the three or more consecutive pixels) associated with the second adjacent portion of the digitized image.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al. teaching of edge detection with Miyabata et al.'s teaching of edge detection, because Miyabata et al.'s edge detection can shorten the processing time as opposed to "lengthen the processing time" in col. 7, line 44.

Claim 15 is rejected the same as claim 24. Thus, argument similar to that presented above for claim 24 of a method is equally applicable to claim 15 of a system.

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Apostolopoulos et al. (US Patent 5,850,294 A) in view of Chong et al. (US Patent 5,844,614 A).

Apostolopoulos et al. does not the limitation of the claimed determination, but Apostolopoulos et al. does teach that "non-edge pixels are smoothed...by any number of...smoothing techniques." in col. 7, lines 26,27. Thus, Apostolopoulos et al. suggests to one of ordinary skill in the art that fig. 5,num. 88 that performs smoothing

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can be modified.

Chong et al. teaches a smoothing as done in fig.1, num. 162 that can be used with Apostolopoulos et al.'s teaching of smoothing and the remaining limitation of

a) removing an image flaw ("remove the ringing effect" in col. 8, lines 16,17 or "the ringing...effects can be reduced" in col. 10, line 25) from the digitized image, in response to a determination that an image intensity of a pixel associated with the image flaw does not differ (fig. 4, step S7) from at least one surrounding pixel (pixels p1-p8) by more than a threshold value (TH2 in fig. 4, step S7).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al.'s smoothing of fig. 5,num. 88 with Chong et al.'s teaching of smoothing, since Chong et al.'s smoothing "significantly reduce[s the] ringing effect" in col. 10, lines 33,34.

Claim 16 is rejected the same as claim 25. Thus, argument similar to that presented above for claim 25 of a method is equally applicable to claim 16 of a system.

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Apostolopoulos et al. (US Patent 5,850,294 A) in view of Acharya et al. (US Patent 6,229,578 B1).

Apostolopoulos et al. does not the limitation of the claimed modifying, but Apostolopoulos et al. does teach that "non-edge pixels are smoothed...by any number of...smoothing techniques." in col. 7, lines 26,27. Thus, Apostolopoulos et al. suggests to one of ordinary skill in the art that fig. 5,num. 88 that performs smoothing can be modified.



Acharya et al. teaches a smoothing technique or “linear averaging” in col. 9, lines 10,11 and the remaining limitation of:

a) modifying an image intensity of a pixel associated with the image flaw to correspond to a median image intensity value of at least one surrounding pixel (using the method and apparatus of fig. 5).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Apostolopoulos et al.’s teaching of fig. 5,num. 88 with Acharya et al.’s teaching of fig. 5, because Acharya et al.’s fig. 5 “may be iterated and adjusted to provide better results.” in col. 10, lines 63,64.

Claim 17 is rejected the same as claim 26. Thus, argument similar to that presented above for claim 26 of a method is equally applicable to claim 17 of a system.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing

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date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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